http://www.nysaes.cornell.edu/ipmnet/sare.mod/

Introduction to IPM

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Overview

Concept	Activity	Handouts
If you present the IPM training modules as a series, it makes sense to inform yourself about each participant's ♦ knowledge level ♦ needs ♦ prior exposure to IPM The pretest helps you do this.	#1: Series Overview Discussion	A. *Farm Questionnaire* B. *IPM Pretest* (we hope you ll suggest other questions on various topics that could, eventually, be included in a mix n match pretest database) C. *What's in This Series?* D. *The Six Steps to IPM Schedule* (you supply)
Participants will get more out of the series if you ♦ provide them with a series overview ♦ acquaint them with key terms in IPM ♦ discuss the steps involved in implementing IPM.		

Keeping series records will help you help others— and justify expenses, too. Evaluating the pretest helps you tailor the modules to your needs

Give the test again after the series is over. Use the results to show a net gain in participants knowledge level.

Resources

Penn State Field Crop IPM pp. 2–4

<http://www.agronomy.org/cca/exams/> for possible exam questions.

Let us know of resources for test questions, or send ones you ve created.

Related Topics

The entire series of modules.

We may say IPM, but this series is about any sustainable farming method and can involve ANY aspect of farming.

Here s what you ll do:

Beforehand:

- familiarize yourself with the pretest—you may wish to modify it depending on how you want to present the series of modules. See "Resources" for access to other test questions;
- make up a schedule.

Today, on site:

- through introductions and pretest, explore needs and ascertain knowledge levels;
- learn what the series—and IPM—is all about.

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Introduction to IPM

Activity #1: Series Overview Discussion

Setting	Time Required	Materials	Handouts
A participants home is ideal need some table space.	*1—2 hours, depending on discussion*	*Clipboards if there s not enough table space.* *Pens and pencils*	*A.* Farm Questionnaire *B.* What s in This Series? *C.* IPM Pretest *D.* The Six Steps to IPM Schedule *(you supply)*

Ask people to introduce themselves (you too!), tell where their farms are, what they produce (number of cows), and what they want out of this series.

Hand out these items:

Farm Questionnaire

What's in This Series?

Schedule

Everyone should fill out and hand in the *Farm Questionnaire.* Keep the questionnaires with your records.

Next, everyone should read through read *What's in These Modules* and look at the schedule. Then ask…	♦ Based on the workshop descriptions, would you suggest additions —or deletions—to the schedule? ♦ Who will be coming to which of the workshops? ♦ Are there any conflicts on dates? *See if you can find alternate times that will work for the group if people can't make the workshops they most want to attend.*
Hand out the *IPM: Pretest* and have people get started. Tell participants that you'll use the results to help tailor the program to meet people's needs. It's your choice as to whether or not they fill in their names. *You may cross out any questions that don't pertain to the subjects you are teaching this season… or include questions from other sources.*	When everyone has finished, collect the papers and keep with your records. Then hand out a fresh test sheet and go over the questions as a group. Discuss the reasons for each answer.

Q:	***Move on, posing a series of questions:***	*A:*

Pose these questions for an open-ended discussion about IPM Answers may vary widely.

- Has anyone here had experience with IPM? Do you know someone who uses it? How has it worked for them?
- Who can define "IPM"?
- What are the worst pest problems (bugs, weeds, and diseases) you have on your farm?
- Who knows what ladybug nymphs look like? *Ask about other common beneficials as well.*
- What's the relationship between insect pests and beneficial insects?
- How would you tell if a pest insect has been parasitized?

When we say IPM, we really mean ICM and even more. Pest management isn t the only farm practice with environmental ramifications. Just about everything we do has an environmental impact that ties into the overall economy of the farm.

Continue the discussion by asking people how familiar they are with the terms listed below. Use their answers—or the lack thereof!—as a springboard for discussion. Explain that they'll be learning more about each through the course of the series.

- integrated pest management
- control methods:
  - biological control
  - mechanical control
  - chemical control
  - cultural control
- pesticide resistance
- pest resurgence

secondary pest outbreak

- parasite
- predator

- economic injury level
- action threshold
- sampling
- sequential sampling

nutrient management

Hand out The Six Steps to IPM *and discuss, step by step.*
Ask people to fill out the Module Feedback *form, and remind them of the next class.*

A. *Farm Questionnaire*

Worksheet for Activity 1, p.1

Grower Name: _____ Date: _____ County: _____

Phone: _____ Agent / Specialist: _____

Address: _____

Directions_____

This information helps your Cooperative Extension agent plan teaching series on IPM and is strictly confidential.

Information About Your Farm

Crop	**Acres**	**Crop**	**Acres**
Corn silage	_____	Primarily alfalfa	_____
Corn grain	_____	Primarily grass	_____
Small grains (please specify)		Other forages (please specify)	
_____	_____	_____	_____
Dairy herd: number milking	_____		

For current production year

Of your corn acres, approximately what % will be in which production year?

First year	0	25	50	75	100	___
2nd year	0	25	50	75	100	___
3rd year	0	25	50	75	100	___
4th or more year	0	25	50	75	100	___
5th or more year	0	25	50	75	100	___

Of your alfalfa acres, approx. what % will be in which production year?

New seeding	0	25	50	75	100	___
First prod. year	0	25	50	75	100	___
2nd prod. year	0	25	50	75	100	___
3rd prod. year	0	25	50	75	100	___
4rd or more year	0	25	50	75	100	___

Information About Cropping Practices

Scouting

Do you contract with anyone (CMA, private consultant, etc.) to scout any of your acres? yes no

If yes, approximately what % of your tillable acres is scouted? _____

Last year, how much did you or someone else on the farm use the following practices?

	always	usually	sometimes	tried it	never
Scouting for alfalfa weevil	___	___	___	___	___
Scouting for potato leafhopper	___	___	___	___	___
Scouting for corn rootworm	___	___	___	___	___
Scouting for weed identification	___	___	___	___	___

Pesticides

2-way seed treatment on corn	___	___	___	___	___
3-way seed treatment on corn	___	___	___	___	___
Soil insecticide on corn	___	___	___	___	___
Insecticides on hay	___	___	___	___	___
Herbicide on new seedings	___	___	___	___	___
Herbicides on established hay	___	___	___	___	___

Nutrient management

- Soil tests: how often do you take a soil test from the average field on your farm?

annual 2 years 3 years 4 or more never

- Do you use the PSNT (presidedress nitrogen test)? yes no

If yes, appoximately what % of your corn fields did you use PSNT on in 1996? _____

- Do you have a nutrient management plan for the farm? yes no
- How do you generally decide on the amount and type of fertilizer to use on each field:

____ use the same program every year ____ use soil test recommendations

____ other (_____)

- Who, if anyone, do you rely on for fertility planning advice (check all that apply):

____ farm supply saleperson ____ Cooperative Extension ____ other (_____)

____ private consultant ____ CMA personnel ____ no one besides self

About Soil Fertility…

(True/False: Circle one answer)

1. A fertilizer labeled 0-15-30 contains 30% available potassium (K_2O). (**circle one**)

True False Don't Know

2. The optimum time to apply nitrogen for your corn crop is prior to plowing to give it time to react with your soil. (**circle one**) True False Don't Know

3. Soil test recommendations are based on the philosophy of economic crop response. The primary aim of his approach is to (**check one**)

____ Maximize yield ____ Maximize net returns

____ Balance acids and bases ____ Balance nutrient input and outflow

____ Don't know

4. A field with sandy loam soil and 5% organic matter has a pH of 6.2. Another field with silty clay soil also has 5% organic matter and a pH of 6.2. Which field requires more lime in order to increase the pH to 6.8? (**check one**)

____ The sandy loam ____ The silty clay field ____ Don't know field

About Alfalfa Crop and Pest Management…

6. Two fields are planted to alfalfa. The first has an average pH of 6.3. The second field has an average pH of 6.8. Assuming all other variables are equal, which field will probably have better production? (**check one**)

____ The first field, with pH 6.1

____ The second field, with pH 6.8

____ Neither will be better, because pH 6.3 is almost the same as pH 6.8

____ Don't know

7. The action threshold for a pest is (**check one**)

____ The average level of pest damage to expect

____ The sample count of the pest which indicates the need for control measures

____ The cost of control measures for the pest

____ Don't know

8. Which of the following factors is the **most** important affecting the development of alfalfa weevil populations? (**check one**)

____ Hours of sunlight

____ Seasonal temperature

____ Relative humidity

____ Percent of grasses in the hay

____ Don't know

9. An alfalfa field has enough alfalfa weevil to cause significant economic losses. Describe two management options to deal with the problem:

a._____

b._____

10. Both established fields and new seedings occasionally suffer loss caused by potato leafhopper (PLH). On average, which fields are more at risk of damage from this pest? (**check one**)

____ New seedings are more at risk than established fields

____ Established fields are more at risk than new seedings

____ New seedings and established fields are equally at risk

____ Don't know

11. Early in the season you find PLH (potato leafhopper) in your field. Where did they come from? (**check one**)

____ Last year's population overwintered in neighboring hedgerows & re-invaded the field

____ Adult PLH migrated from the south on wind currents

____ Last year's population overwintered in soil, then emerged and grew as temperatures rose

____ Don't know

About Weed Management and Herbicides…

12. A hay field contains many plants of a broadleaf weed you do not recognize. Nearby plants of this weed are connected to each other by underground root-like structures. The life cycle of this weed is most likely: (**check one**)

____ Annual ____ Perennial

____ Biennial ____ Don't know

13. Atrazine, Bladex, and Princep are examples of triazine herbicides. Four major weeds in New York are confirmed or suspected of having triazine-resistant types. Name as many of the four as you can.

1. _____ 3. _____

2. _____ 4. _____

14. Assume a farmer grows continuous corn and has used atrazine as his primary herbicide for years. He notices a few triazine resistant weeds. Management options for next year that should help control these weeds include: (**check one**)

____ Increase the rate of atrazine ____ Switch from atrazine to Prowl

____ Change atrazine timing ____ Switch from atrazine to Bicep

15. Weed scouting in corn soon after corn emergence (instead of later) is especially important. State 2 reasons:

a. _____

b. _____

About Corn Insects (and Diseases)…

16. 3-way planter box seed treatment of captan, lindane and diazinon is designed to protect from which of the following? (check **all** that apply)

____ western corn rootworm	____ black cutworm	____ wireworm
____ seed corn maggot	____ common armyworm	____ seed decay
____ damping off	____ all of these listed	____ none of these listed

17. For each category, choose the one situation with the highest priority for using planter box seed treatment: (**check one in each line**)

a. Tillage	____ Conventional	____ Minimum	____ No-till
b. Manure applied previously	____ Light	____ Moderate	____ Heavy
c. Planting date	____ Early	____ Medium	____ Late

18. While scouting a corn field during pollen shed, you notice yellow and black beetles, about 1/4 inch long, in the silks and in leaf collars where pollen is collected. These are probably which of the following? (**check one**)

____ Lady bird beetle	____ Western corn rootworm
____ Northern corn rootworm	____ Don't know

19. At silking. a corn field has an average of 1.5 **western** corn rootworm beetles on every plant. A neighboring corn field is identical in all respects (soil type, fertility, variety, growth stage, etc.) except instead of western corn rootworm beetles it has 1.5 **northern** corn rootworm beetles per plant. Which field is more likely to suffer more damage? (**check one**)

____ 1st field, with western corn rootworm	____ 2nd field, with northern corn rootworm
____ Both fields will be damaged the same amount	____ Don't know

20. You determine through scouting that there are enough corn rootworm beetles in a corn field to cause significant economic loss. Silks are not being clipped, so pollination is proceeding normally. List method and timing of two management techniques that address this problem.

First Method:

a. What you can do: _____

b. When you should do it: _____

Second Method:

a. What you can do: _____

b. When you should do it: _____

C. What s in This Series?

Handout for Activity 1

Module 1. How To Teach These Modules

Learn the most effective ways to reach adult learners.

Module 2. Introduction to IPM

It helps to know the terminology—and the issues—before you attend a series of workshops on IPM. IPM isn't only about the farmer's pest triangle: bugs, weeds, and diseases. Any technique that promotes profit in the context of understanding environmental principles is fair game for IPM.

Module 3. Principles of Scientific Sampling

Treating for pests only if you have enough to cause damage is a core tenet of IPM. But how do we know when pest populations are too high? Unbiased scientific sampling provides you with accurate estimates.

Module 4. What is a Threshold?

Once again, treating for pests only if you've got enough of them to cause damage is a central tenet of IPM. But how much damage is too much? Thresholds define the point at which pests will cause a loss greater than the cost of controlling them.

Module 5. Economic Implications of IPM

Sampling and thresholds—how do they work together? And doesn't IPM "cost" something, too? What could this really mean for your ledger sheet? This module explores the economics of IPM.

Module 6. IPM for Alfalfa Weevil

Biological controls have worked well for alfalfa weevil—but farmers still need to know how to recognize the weevil so they can catch and treat it early, in certain years and in fields where it may cause a problem.

Module 7. IPM for Corn Rootworm

The western and the northern corn rootworms can seriously damage your crops damage before visible signs appear. Not only that—but you can't treat for rootworm till the following year. These factors make IPM a natural for corn rootworm control.

Module 8. IPM for Potato Leafhopper in Alfalfa

Potato leafhoppers usually won't bother your first stand of alfalfa. But it's the most damaging pest of second and third cuttings throughout much of the Northeast. And because vigor is lost before visible signs appear, sampling for early detection is crucial. Once symptoms appear, you can prevent further damage—but you can't recover what you've already lost.

Module 9. Weed Identification in Corn: and other row crops

Do you know for sure which annual weeds you have—and which cause the most yield loss in your fields? Can you treat weeds effectively if you're not sure what they all are? This session teaches you the easy way to talk the talk and walk the walk—to use the botanist's tools to identify any weed that comes your way.

Module 10. Weed Management in Row Crops: application to corn production

Not all weeds reduce yields equally, and not all fields are equally liable to revenue loss from weeds. Learn how to determine if weeds pose an economic threat, and examine the various ways to control them.

Module 11. Manure as a Resource

Restrictive legislation concering manure management is here to stay. How can you best use manure to improve the fertility of your fields, while keeping it out of the watersheds? Learn about nutrient cycling and how to calculate the amount of available nitrogen—then use manure to replace expensive fertilizers.

Module 12. Optimum Corn Seeding Rates and Hybrid Maturity Selection (2 Sessions)

Understanding "yield potential" can help you reap the benefits of densely-planted stands, for silage and grain corn both. And learning how different hybrids respond to "Growing Degree Days" can help you choose a mix of varieties that helps you hedge your bets for high overall yields, season after season.

Module 13. Boom Sprayer Calibration

Is your equipment is working for you or against you? Environmental stewardship— and good economics, too—can be as basic as being sure that you're spreading chemicals where they should be, at the rate that's required.

Module 14. IPM for Managing Barn Flies

he cumulative effect of barn flies, along with other livestock pests, can reduce milk production and feed conversion efficiency--and the flies quickly become resistant to insecticides. Discover how a combination of cultural, biological, and chemical practices can keep fly populations to a minimum.

Module 15. Designing In-field Demonstrations

You can design demonstrations on your own fields that tell you how well your cropping practices work with different pest management techniques, new hybrids, etc. Find out how to achieve statistical validity without too much work